AMENDMENTS TO THE SPECIFICATION

Please replace paragraph **[007]** with the following amended paragraph:

[007] In general, GPS systems are typically satellite (also known as "space vehicle" or "SV") based navigation systems. Examples of GPS include but are not limited to the United States ("U.S.") Navy Navigation Satellite System ("NNSS") (also ~~know~~ known as TRANSIT), LORAN, Shoran, Decca, TACAN, NAVSTAR, the Russian counterpart to NAVSTAR known as the Global Navigation Satellite System ("GLONASS") and any future Western European GPS such as the proposed "Galileo" program.

Please replace paragraph **[023]** with the following amended paragraph:

[023] In response to these problems, aiding approaches have been developed for mobile telephones that assist the GPS receiver by providing aiding data from a communication module (also known as a "call processor" or "CP") for such purposes as acquisition, location calculation and/or sensitivity improvement. Examples of some of these aiding approaches include systems described by United States ("U.S.") Patent 6,433,734, titled "Method and apparatus for determining time for GPS receivers," issued on August 13, 2002 to inventor Krasner; U.S. Patent 6,421,002, titled "GPS receiver utilizing a communication link," issued on July 16, 2002 to inventor Krasner; U.S. Patent 6,411,254, titled "Satellite positioning reference system and method," issued on June 25, 2002 to inventors Moeglein et al.; U.S. Patent 6,400,314, titled "GPS receiver utilizing a communication link," issued on June 4, 2002 to inventor Krasner; U.S. Patent 6,313,786, titled "Method and apparatus for measurement processing of satellite positioning system (SPS) signals," issued November 6, 2001 to inventors Sheynblat et al.; U.S. Patent 6,259,399, titled "GPS receivers and garments containing GPS receivers and methods for using these GPS receivers," issued on July 10, 2001 to inventor Krasner; U.S. Patent

6,215,441, titled "Satellite positioning reference system and method," issued on April 10, 2001 to inventors Moeglein et al.; U.S. Patent 6,208,290, titled "GPS receiver utilizing a communication link," issued on March 27, 2001 to inventor Krasner; U.S. Patent 6,185,427, titled "Distributed satellite position system processing and application network," issued on February 6, 2001 to inventors Krasner et al.; U.S. Patent 6,150,980, titled "Method and apparatus for determining time for GPS receivers," issued on November 21, 2000 to inventor Krasner; U.S. Patent 6,133,874, titled "Method and apparatus for acquiring satellite positioning system signals," issued on October 17, 2000 to inventor Krasner; U.S. Patent 6,064,336, titled "GPS receiver utilizing a communication link," issued on May 16, 2000 to inventor Krasner; U.S. Patent 5,945,944, titled "Method and apparatus for determining time for GPS receivers," issued. on August 31, 1999 to inventor Krasner; U.S, Patent 5,825,327, titled "GPS receiver utilizing a communication link," issued on November 24, 1998 to inventor Krasner; and U.S. Patent 5,841,396 ~~5,825,327~~, titled "GPS receivers and garments containing GPS receivers and methods for using these GPS receivers," issued on October 20, 1998 to inventor Krasner, which are herein incorporated by reference. Unfortunately, these aiding approaches in wireless networks are typically cellular network (i.e., cellular platforms such as TDMA, GSM, CDMA, etc.) and vendor specific, and are provided by Geolocation Server Stations located at the cellular network. As a result, the GPS receiver in the mobile telephone (also known as a "mobile station" or "MS") must typically be compatible with the Geolocation Server Station of the cellular network.

Please replace paragraph **[048]** with the following amended paragraph:

[048] These new integrated communication devices may either be in communication with a cellular telephone communication network through collection nodes such as a base-station tower 228 or with a non-cellular communication network through non-cellular collection point 230.

The cellular communication networks may be a TDMA, CDMA, GSM, W-CDMA, CDMA 2000, UMTS, 3G, GPRS, or AMPS type of cellular network. The non-cellular communication network may include such networks as BlueTooth®, Wireless Fidelity ("Wi-Fi®") network based on IEEE 802.11, or other similar wireless networks. As an example, the hand-held GPS receiver 202, integrated automobile GPS receiver 204, integrated cellular telephone GPS receiver 206, PDA 208, and mobile computer 210 may be in communication with cellular base-station 228 via signal paths 232, 234, 236, 238 and 240, respectively. Similarly, the hand-held GPS receiver 202, ~~DPA~~ PDA 208, and mobile computer 210 may be in signal communication with the non-cellular connection point 230 via signal paths 242, 244 and 246.

Please replace paragraph **[052]** with the following amended paragraph:

[052] FIG. 4 shows an example implementation of a mobile device 400 including a call processor 402 in signal communication with a GPS module 404 via signal path 406. The mobile device 400 may be one of the example devices 202, 204, 206, 208, 210, and 212 shown in FIG. 2. The call processor 402 is in signal communication with the base station 308 via signal path 318 and the GPS module 404 receives GPS data from the GPS Satellite Constellation 226 via signal path 304. It is again appreciated that the call processor 402 and GPS module 404 may be each functional units that may be implemented in either separate semiconductor chips or in one common semiconductor chip or die. As an example, the signal path 406 may be implemented with a RS232 data link if the call processor 402 and GPS module 404 are physically separate devices.

Please replace paragraph **[055]** with the following amended paragraph:

[055] Examples of a cellular telephone type of call processor 402 may include a cellular telephone call processing Integrated Dispatch Enhanced Network ("iDENTM") produced by Motorola, Inc., of Schaumberg, Illinois, CDMA2000® 1X type chipsets utilized by Nokia of Finland, Sony Ericsson of Sweden, Qualcomm, Inc. of San Diego, California, or any similar type of GSM/CDMA/TDMA/UMTS type of communication device capable of communicating with a GPS receiver within GPS module 308. Examples of a non-cellular telephone type of communication device may include the SX45 GPS accessory produced by Siemens SA of Germany, any communication device capable of communicating ~~to~~ <u>with</u> a BlueTooth®, Wireless Fidelity ("Wi-Fi®") network based on IEEE 802.11, or other similar wireless networks. The GPS module 404 may include any GPS receiver capable of communicating with the call processor 402.

Please replace paragraph **[060]** with the following amended paragraph:

[060] The F interface, which is the client system interface between the GPS module 522 and Call Processor 520, acts as a bootstrap protocol, ever present, allowing the Call Processor 520 to choose at run-time how the aiding will be conveyed to the GPS module 522 in the aiding encapsulation layer. The Call Processor 520 may choose between an air-interface (such as interface 526 in the case of the end-to-end system architecture) or the G interface. The F interface may perform the following tasks: GPS module 522 hardware management from the Call Processor 520 (power on/off, reset); if available, implicit aiding interface, i.e., sends time and frequency transfer from network (or from Call Processor 520 real time clock) via the Call Processor 520, and approximate Mobile Device 506 position (generally implicit from the network, if it does exist); session opening/closing (i.e., notifying the GPS module 522 that an air-interface connection has been opened/closed); and in a dual-mode Mobile Device 506, notifying

the GPS module 522 what air interface is on, thus notifying the GPS module 522 what set of geolocation air-interface protocols to use to dialog with the ~~SLS~~ Geolocation Server 512.

Please replace paragraph **[074]** with the following amended paragraph:

[074] The PACS 1010 allows the GPS module 1008 to receive the almanac data and provide to the PACS 1010 the information for each individual satellite as it becomes available. The PACS 1010 is capable of receiving information such as the almanac week and ~~time-of-arrive~~ time-of-arrival ("TOA") from the GPS module 1008, and associating the almanac week and TOA with each satellite datum that is provided by the GPS module 1008. The PACS 1010 then assembles the satellite information received from the GPS module 1008 and keeps track of the freshness of each satellite in the almanac. As a result, the PACS 1010 is capable of working with an almanac that may have a mixture of satellites with differing almanac week and TOA information.

Please replace paragraph **[076]** with the following amended paragraph:

[076] In general, the PACS 1010 may operate in two ways. The first way may be described as a polling process (i.e., method) where the PACS 1010 requests a piecewise almanac download from the GPS module 1008 possibly in response to receiving a request for a piecewise download from the Call Processor 1006 if the PACS 1010 is a separate device from the Call Processor 1006. The PACS 1010 continues to make ~~period~~ periodic requests to the GPS module 1008 to gather the almanac status until either it is received completely (as indicated by a full almanac received flag) or the PACS 1010 decides to close the session with the GPS module 1008 before a full download of the almanac data is completed. The PACS 1010 may close the session with GPS module 1008 before a full download of the almanac data for a number of different reasons including powering down (i.e., when a user turns off the integrated communication and GPS

device 1000), power saving considerations, having already received a full almanac for the Call Processor 1006, or because the Call Processor 1006 requested the session closed to place a call or perform another function that conflicts with an open session with the GPS module 1010.

Please replace paragraph **[081]** with the following amended paragraph:

[081] In an exemplary non-polling process, the process again starts in step 1102 and continues through decision step 1104 to step 1126. In step 1126, the Call Processor opens a session with the PACS and in step 1128 the Call Processor requests that the PACS perform a piecewise almanac download from a satellite. The PACS performs a piecewise almanac download, in step 1130, and responds to the Call Processor, in step 1132, with the status of the collected almanac. In step 1134, the Call Processor requests a status of the almanac and, in decision step 1136, the PACS determines if the PACS received enough time to complete a full almanac download. It is appreciated that the Call Processor may also make the same determination.

Please replace paragraph **[087]** with the following amended paragraph:

[087] As ~~show~~ shown in FIG. 12, the Call Processor 1204 sends ~~an~~ a Session Open request 1206 to the PACS 1202 via Interface 1208 (such as the PI2 interface). The PACS 1202 sends an acknowledgment 1210 of the Session Open request 1206. The Call Processor 1204 then sends a request for piecewise almanac 1212 to the PACS 1202. The PACS 1202 then passes the piecewise almanac request 1214 from the Interface 1208 to the controller 1216, which passes the request 1218 to the GPS core 1220 within the GPS module (not shown) and sends an acknowledgment 1222 to the ~~call processor~~ Call Processor 1204.

Please replace paragraph **[088]** with the following amended paragraph:

[088] The GPS core 1220 then receives the GPS signals 1224 from the GPS constellation 1226. The GPS core 1220 extracts the received almanac data from the received GPS signals 1224 and passes the received almanac data 1228 to the ~~controller~~ Controller 1216. The Controller 1216 then determines the pseudorandom noise number ("PRN"), time-of-arrive ("TOA"), and Week number from the almanac data and passes, via 1230 and 1232, the almanac data, including the PRN, TOA and Week number, from the PACS 1202 to Call Processor 1204. In response, the Call Processor 1204 makes periodic requests for piecewise almanac 1234 via requests for almanac update status requests. It is appreciated that the GPS ~~Core~~ core 1220 is constantly receiving GPS signals 1224 and 1236 from the GPS constellation 1226, and that the Controller 1216 is periodically requesting 1238, 1240, and 1242 and receiving 1244, 1246 and 1248 almanac data from the GPS core 1220.

Please replace paragraph **[092]** with the following amended paragraph:

[092] As ~~show~~ shown in FIG. 13, the Call Processor 1304 sends an Session Open request 1306 to the PACS 1302 via Interface 1308 (such as the PI2 interface). The PACS 1302 sends an acknowledgment 1310 to the Session Open request 1306. The Call Processor 1304 then sends a request for almanac 1312 to the PACS 1302. The PACS 1302 then passes the almanac request 1314 from the Interface 1308 to the ~~controller~~ Controller 1316, which passes the request 1318 to the GPS core 1320 within the GPS module (not shown) and sends an acknowledgment 1322 to the ~~call processor~~ Call Processor 1304.

Please replace paragraph **[093]** with the following amended paragraph:

[093] The GPS core 1320 then receives the GPS signals 1324 from the GPS constellation 1326. The GPS core 1320 extracts the received almanac data from the received GPS signals 1324 and

passes the received almanac data 1328 to the ~~controller~~ Controller 1316. The Controller 1316 then determines the status of the almanac download and passes the almanac data status, via 1330 and 1332, from the PACS 1302 to Call Processor 1304. In response, the Call Processor 1304 makes a request for almanac 1334. It is appreciated that the GPS ~~Core~~ core 1320 is constantly receiving GPS signals 1324 and 1336 from the GPS constellation 1326, and that the Controller 1316 is periodically requesting 1338, 1340, and 1342 and receiving 1344, 1346 and 1348 almanac data from the GPS core 1320.

Please replace paragraph **[094]** with the following amended paragraph:

[094] The Controller 1316 responds to the almanac request 1334 from the Call Processor 1304, with piecewise almanac data 1350 that is passed 1352 from the PACS 1302 to the Call Processor 1304. The Controller 1316 then manages the almanac database and applies any mixed almanac processing. At some point, the Call Processor 1304 sends a Session Close Request 1354 to the PACS 1302, in response to either a received status from the PACS 1202 of full almanac collected or a status indicating that the PACS cannot collect the almanac. When the Call Processor 1304[[,]] sends a Session Close request 1354 to the PACS 1302, the Session Close request 1356 is passed to the Controller 1316. The Controller 1316 then passes 1358 the almanac data to storage memory 1360. The Controller 1316 then responds, via 1362 and 1364, to the Call Processor 1302 with an acknowledgment.

Please replace paragraph **[096]** with the following amended paragraph:

[096] As ~~show~~ shown in FIG. 14, the Call Processor 1404 sends an Session Open request 1406 to the PACS 1402 via Interface 1408 (such as the PI2 interface). The PACS 1402 sends an acknowledgment 1410 to the Session Open request 1406. The Call Processor 1404 then sends a

request for almanac 1412 to the PACS 1402. The PACS 1402 then passes the almanac request 1414 from the Interface 1408 to the controller 1416, which passes the request 1418 to the GPS core 1420 within the GPS module (not shown) and sends an acknowledgment 1420 to the ~~call processor~~ Call Processor 1404.

Please replace paragraph **[097]** with the following amended paragraph:

[097] The GPS core 1420 then receives the GPS signals 1424 ~~form~~ from the GPS constellation 1426. The GPS core 1420 extracts the received almanac data from the received GPS signals 1424 and passes the received almanac data 1428 to the controller 1416. It is appreciated that the GPS Core 1420 is constantly receiving GPS signals 1424 and 1430 from the GPS constellation 1426, and that the Controller 1416 is periodically requesting 1418 and 1432 and receiving 1428 and 1434 almanac data from the GPS core 1420. In this way, the PACS 1402 gathers the piecewise almanac from the GPS constellation 1426. When the Call Processor 1404 sends a Session Close request 1436 to the PACS 1402, the Session Close request 1438 is passed to the Controller 1416. The Controller 1416 then manages the almanac database and applies any mixed almanac processing and responds 1440, via the interface 1408, with response message 1442 to the Call Processor 1404 that indicates whether or not the PACS 1402 has collected a partial almanac for a satellite from the GPS constellation 1426. In response, the Call Processor 1404 requests 1444 an almanac update status from the PACS 1402. The PACS 1402 responds 1446 to the Call Processor 1404 requests with almanac status messages 1448 for the almanac data collected for a satellite (or the satellites) that includes almanac PRN, TOA, and Almanac Week number. The PACS 1402 then passes 1450 the almanac data to storage memory 1452. The Controller 1416 then responds, via 1454 and 1456, to the Call Processor 1402 with an acknowledgment.

Please replace paragraph **[098]** with the following amended paragraph:

[098] FIG. 15 shows a signal flow diagram 1500 for yet another example non-polling process performed by the PACS 1504. In FIG. 15, the PACS 1502 reports a status of partial almanac download as a result of a change in signal conditions before a full almanac download was completed by the PACS 1504. In this exemplary process, the Call Processor 1504 initiates a session with the PACS 1502 and requests an almanac download (such as a piecewise almanac download) from the PACS 1502. The PACS 1502 may receive instructions from the Call Processor 1504 that include parameters of operations such as, but not limited to, instructions to collect satellite almanac when signal conditions are above a certain level (such as greater than 28 dB-Hertz) and indications of the whether the Call Processor 1504 will, or will not, provide any almanac aiding. The PACS 1502 sends an acknowledgment to the Call Processor 1502 and begins collecting the almanac. In this example, the signals change prior to the PACS 1502 collecting a full almanac. The PACS 1502 then sends a message to the Call Processor 1504 indicating whether it has collected a partial almanac. In response, the Call Processor 1504 requests an almanac update status and the PACS 1504 ~~response~~ <u>responds</u> with the almanac status including the almanac status for partial almanac data in fields that include almanac PRN, TOA, and Almanac Week number. The PACS 1504 then manages the almanac database and applies any mixed almanac processing. The Call Processor 1502 then sends a Session Close request. The PACS 1502 then stores the almanac to a memory device 1520 (such as Flash) and sends an acknowledgment to the Call Processor 1504.

Please replace paragraph **[099]** with the following amended paragraph:.

[099] As ~~show~~ shown in FIG. 15, the Call Processor 1504 sends an Session Open request 1506 to the PACS 1502 via Interface 1508 (such as the PI2 interface). The PACS 1502 sends an acknowledgment 1510 to the Session Open request 1506. The Call Processor 1504 then sends a request for almanac 1512 to the PACS 1502. The PACS 1502 then passes the almanac request 1514 from the Interface 1508 to the ~~controller~~ Controller 1516, which passes the request 1518 to the GPS core 1520 within the GPS module (not shown) and sends an acknowledgment 1522 to the call processor 1504.

Please replace paragraph **[0100]** with the following amended paragraph:

[0100] The GPS core 1520 then receives the GPS signals 1524 ~~form~~ from the GPS constellation 1526. The GPS core 1520 extracts the received almanac data from the received GPS signals 1524 and passes the received almanac data 1528 to the ~~controller~~ Controller 1516. It is appreciated that the GPS ~~Core~~ core 1520 is constantly receiving GPS signals 1524 and 1530 from the GPS constellation 1526, and that the Controller 1516 is periodically requesting 1518 and 1532 and receiving 1528 and 1534 almanac data from the GPS core 1520. In this way, the PACS 1502 gathers the piecewise almanac from the GPS constellation 1526. The PACS 1502 then sends a response message 1536, 1538 to the Call Processor 1504 that indicates whether a partial almanac has been collected. In response, the Call Processor 1504 requests an almanac update status 1540, 1542 and the PACS 1502 responds with the almanac status 1544, 1546 including the almanac status for partial almanac data in fields that include almanac PRN, TOA, and Almanac Week number. The PACS 1502 then manages the almanac database and applies any mixed almanac processing. When the Call Processor 1504 sends a Session Close request 1548 to the PACS 1502, the Session Close request 1550 is passed to the Controller 1516. The

PACS 1502 then passes 1552 the almanac data to storage memory 1554. The Controller 1516 then responds, via 1556 and 1558, to the Call Processor 1504 with an acknowledgment.

Please replace paragraph **[0102]** with the following amended paragraph:

[0102] As ~~show~~ shown in FIG. 16, the Call Processor 1604 sends an Session Open request 1606 to the PACS 1602 via Interface 1608 (such as the PI2 interface). The PACS 1602 sends an acknowledgment 1610 to the Session Open request 1606. The Call Processor 1604 then sends a request for almanac 1612 to the PACS 1602. The PACS 1602 then passes the almanac request 1614 from the Interface 1608 to the ~~controller~~ Controller 1616, which passes the request 1618 to the GPS core 1620 within the GPS module (not shown) and sends an acknowledgment 1622 to the ~~call processor~~ Call Processor 1604.

Please replace paragraph **[0103]** with the following amended paragraph:

[0103] The GPS core 1620 then receives the GPS signals 1624 from the GPS constellation 1626. The GPS core 1620 extracts the received almanac data from the received GPS signals 1624 and passes the received almanac data 1628 to the ~~controller~~ Controller 1616. It is appreciated that the GPS Core 1620 is constantly receiving GPS signals 1624 and 1630 from the GPS constellation 1626, and that the Controller 1616 is periodically requesting 1618 and 1630 and receiving 1628 and 1634 almanac data from the GPS core 1620. In this way, the PACS 1602 attempts to gather the piecewise almanac from the GPS constellation 1626.